CLAIMS

We Claim:

1. A method of forming a non-woven fibrous shaping layer for a face mask, which comprises:

(a) heating a non-woven web of fibrous material that contains: (i) at least about 40 wt. % thermally bonding fibers based on the weight of non-woven fibrous material, at least about 10 wt. % of the non-woven fibrous material being bicomponent fibers; and optionally (ii) staple fibers, to a temperature at which the thermally bonding fibers, including at least one component of the bicomponent fibers are softened; and then

(b) molding the heated non-woven web of fibrous material, while the thermally bonding fibers and the at least one component of the bicomponent fibers are still soft, in a mold having molding members that are at a temperature below the softening temperatures of the thermally bonding fibers including all components of the bicomponent fibers.

2. The method of claim 1, further comprising the step of:

preskinning the non-woven web of fibrous material.

3. The method of claim 1, wherein the non-woven web of fibrous material contains bicomponent fibers that have a core of polyethylene terephthalate and a sheath of a modified copolyolefin or an amorphous copolyester.

4. The method of claim 3, wherein the non-woven web of fibrous material is preskinned between gapped hot calender rolls at from about 110 to 230°C.

5. The method of claim 1 further comprising:

impeding shrinkage of the non-woven web of fibrous material.

6. The method of claim 5, wherein shrinkage is impeded by restraining the non-woven web with air impingement, edge belts, or edge hooks.

7. The method of claim 5, wherein shrinkage is impeded by having air impinge upon one side of the non-woven web.

8. The method of claim 1, wherein the non-woven web of fibrous material comprises at least 20 wt. % bicomponent fiber.

9. The method of claim 1, wherein the non-woven web of fibrous material comprises at least 50 wt. % bicomponent fiber.

10. The method of claim 1, wherein the non-woven web of fibrous material consists essentially of at least 20 wt. % bicomponent fiber, zero to 80 wt. % binder fiber, and zero to 50 wt. % staple fiber based on the weight of the fibers in the non-woven web.

11. A method of forming a non-woven fibrous shaping layer for a face mask, which comprises:

(a) preskinning a non-woven fibrous web containing thermally bonding fibers;

(b) heating the non-woven fibrous web to a temperature above a softening temperature of at least one bonding component of the non-woven fibrous web; and

(c) molding the non-woven fibrous web between molding members that are at a temperature below the softening temperatures of all components of the thermally bonding fibers.

12. The method of claim 11, further comprising the step of:

impeding shrinkage of the non-woven fibrous web.

13. The method of claim 10, wherein shrinkage is impeded by applying air impingement to one side of the non-woven web.

14. The method of claim 11, wherein the non-woven fibrous web contains at least 20 weight percent bicomponent fibers having a sheath comprising a modified copolyolefin or an amorphous copolyester, and wherein the non-woven fibrous web is preskinned between gapped hot calender rolls at from 110 to 230°C.

15. The method of claim 11, wherein the non-woven web comprises at least 20 wt. % bicomponent fibers based on the weight of the non-woven fibrous web.

16. The method of claim 11, wherein the non-woven fibrous web consists essentially of at least 20 wt. % bicomponent fibers, zero to 80 wt. % binder fibers, and zero to 50 wt. % staple fibers.

17. A method of forming a fibrous face mask, which comprises:

(a) passing in superimposed relationship at least one layer of filtering material and at least one layer of non-woven fibrous material containing (i) at least about 40 wt. % thermally bonding fibers based on the weight of the non-woven fibrous material, at least about 10 wt. % of the non-woven fibrous material being bicomponent fibers, and optionally (ii) staple fibers through a heating stage where the thermally bonding fibers, including at least one component of the bicomponent fibers, are softened; and thereafter

(b) molding the superimposed layers to the shape of a face mask in molding members that are at a temperature below the softening temperature of the thermally bonding fibers, including the at least one softened component of the bicomponent fibers, the molding occurring while the thermally bonding fibers and bicomponent fibers are still able to permit fiber bonding.

18. The method of claim 17, wherein the at least one layer of non-woven fibrous material is restrained from shrinking during the heating stage and is preskinned between gapped hot calender rolls.

19. The method of claim 17, wherein the non-woven web of fibrous material contains at least 75 wt. % bicomponent fiber.

20. The method of claim 17, wherein the at least one layer of non-woven fibrous material consists essentially of at least 20 wt. % bicomponent fibers, zero to 80 wt. % binder fibers, and zero to 50 wt. % staple fibers.

21. A shaping layer for a face mask, which is formed by the method of claim 1.

22. A shaping layer for a face mask, which is formed by the method of claim 11.

23. A face mask formed by the method of claim 17.

24. A method of filtering particles in the air and exhaled from a person, which comprises: placing the face mask of claim 23 over the breathing passages of the person.

25. A fibrous face mask for filtering contaminants and/or particulate matter, which comprises:

(a) a means for securing the mask to the face of a wearer; and

(b) a non-woven fibrous layer attached to the securing means and containing (i) at least about 40 wt. % thermally bonding fibers based on the weight of the fibers in the non-woven fibrous layer, at least about 10 wt. % of the fibers in the non-woven layer being bicomponent fibers, and optionally (ii) staple fibers, the non-woven fibrous layer being molded in a cup-shaped configuration and having a surface fuzz value of not less than 7.5 after being subjected to a surface fuzz abrasion test.

26. The face mask of claim 25, wherein the mask has at least two non-woven layers containing bonded thermally bonding fibers, the first non-woven layer containing about 60 wt. % bicomponent fibers and about 40 wt. % staple fibers, the second non-woven layer containing about 70 wt. % bicomponent fiber and about 30 wt. % binder fiber, the first layer being located on the inside of the second layer, and wherein the mask has a filtration layer containing blown microfibers located between the first and second non-woven layers.

27. The face mask of claim 25, wherein the surface fuzz value is not less than 8.0.

28. The face mask of claim 25, wherein the surface fuzz value is not less than 9.0.

29. The face mask of claim 25, wherein the bicomponent fiber content is at least 50 wt. %.